Joint Projects of the United States and Mexico
Constructed Through the International Boundary and Water Commission

Following is a description of each of the joint projects of the Governments of the United States and Mexico planned, designed, constructed, operated and maintained through the International Boundary and Water Commission. They are described in the order of their geographic location as follows:

International Land Boundary

The international land boundary extends westward from a point just upstream from El Paso, Texas and Juárez, Chihuahua along the New Mexico-Chihuahua and Arizona-Sonora state boundaries a distance of 533 miles (858 km) to the Colorado River, thence from that river along the California-Baja California state boundary a distance of 141 miles (226 km) to the Pacific Ocean. In 1941 the then IBC (International Boundary Commission) recommended and the two Governments approved a joint project for the treatment and disposal of the salinity waste waters of the border cities of Douglas, Arizona and Agua Prieta, Sonora, Mexico. United States participation in the construction of the project was authorized by the Act of August 19, 1935. The project was constructed in 1947. The project serves to resolve a border sanitation problem for the two cities created by partially treated sewage effluent from septic tanks in Douglas, Arizona crossing the boundary into Mexico in an open ditch near Agua Prieta, Sonora. The original project southwest of Douglas, Arizona on the United States side consisted of primary clarifiers, a trickling filter and a sludge digester with adjoining oxidation ponds on the Mexican side. Each Government financed the works built on its respective side. The wastewater treatment works were expanded and improved by the two Governments in their respective territories in 1961 and again in 1966 to meet the needs of the two growing cities. In 1968 Mexico constructed stabilization lagoons southwest of the City of Agua Prieta to enable gravity conveyance of the city's waste water to the treatment lagoons. In 1980 the City of Douglas upgraded the treatment plant for the United States. The international character of the project is retained so that when the plant in the United States is out of service for repairs of other emergency all the waste waters from Douglas, Arizona can be discharged directly to the lagoons in Mexico for treatment.

Douglas, Arizona-Agua Prieta, Sonora International Waste Water Treatment Project

The City of Douglas at its expense operates and maintains the plant in the United States, and Mexico operates and maintains the oxidation ponds in Agua Prieta. The IBWC exercises general supervision over the operation and maintenance of the works in the two countries. Since completion of the original plant this joint international arrangement has effectively resolved the border sanitation problem for Douglas, Arizona and Agua Prieta, Sonora, Mexico.

Flood Control Project - Nogales, Arizona-Nogales, Sonora

In 1933 the two Governments agreed to construct through the IBC a joint flood control project to protect the adjoining border cities of Nogales, Arizona and Nogales, Sonora from floods in the Nogales Wash, which flows northward from Mexico into the United States through the two cities. The United States Section of the IBC constructed the portion of the international project in the United States initially in 1933, with funds authorized by the National Industrial Recovery Act of June 13, 1933, and later under the authorization in the August 19, 1935 Act. The initial part of the project in the United States was undertaken in 1933 and was completed in 1936. It was extended in 1948 and 1949.

The early history of the two sister cities was marked by loss of life and serious damages from floods of the Nogales Wash. After the flood of 1930 it was recognized that the cooperation of the two Federal Governments was needed for resolution of the problem. The IBC prepared the plans for and recommended to the two Governments a coordinated international flood protection project. The plans were approved and each Government constructed at its expense the works in its territory, under the supervision of the Joint Commission.

The project consists of a concrete-lined flood control channel of 0.71 mile (1 km) in Mexico and 2.06 miles (3 km) in the United States. The City of Nogales, Arizona operates and maintains the portion of the international project in the United States. This project has effectively provided flood protection for the business district of Nogales, Arizona and Nogales, Sonora.

Nogales, Arizona-Nogales, Sonora International Waste Water Treatment Project

In 1943 the Governments of the United States and Mexico approved recommendations of the IBC that the treatment and disposal of sanitary waste waters from the adjoining border cities of Nogales, Arizona and Nogales, Sonora, could best be performed by the construction and operation of an international project for the two cities. The United States participation in the joint project was authorized by the Congress in the Act of August 19, 1935 and July 27, 1953.

Because the two cities, although separated by the boundary are, in fact, one urban area and because they are situated along the sides of a narrow canyon and wash which slopes steeply from Mexico northward into the United States, the most practical solution was determined to be one consisting of a gravity trunk line collector from the Mexican city connecting at the boundary with a gravity trunk line collector for the two cities to convey the waste waters to a joint treatment plant on the north side of Nogales, Arizona.

The initial joint plant was constructed in 1951at a site 1.5 miles (2 km) north of the boundary. The total construction cost was shared equally by the two countries. This plant adequately served the population of the two cities until the mid-1960's when the increasing populations necessitated an expansion of the facilities. New, larger facilities were recommended by the IBWC in 1967 and were approved by the two Governments. The new plant is located 8.8 miles (14 km) north of the international boundary, and consists of two aeration lagoons and three stabilization ponds, followed by chlorination of the effluent which then is discharged into the Santa Cruz River. The plant has a capacity of 8.2 million gallons (31.0 million liters) per day. As part of the project, a new trunk line collector was constructed from the boundary to the plant. Cost of the new plant was shared by the City of Nogales, Arizona by the Government of Mexico and by the United States Government.

The City of Nogales, Arizona operates and maintains this facility under the supervision of the IBWC. The agreement of the United States Section with the City provides for reimbursement of it for operation and maintenance costs required to treat the waste water form the Mexican city. The Mexican Government currently pays about 75 percent of the total cost of treating the waste waters from Nogales, Sonora, determined on the basis of the cost of performance of the same work on the Mexican side. The remaining such costs, which are referred to as "international costs" and include expenditures to assure protection of United States properties, are borne by the United States Government.

This joint international waste water project for "Ambos Nogales" has effectively resolved the border sanitation problem for the two cities.

New River Border Sanitation Problem and Solution

On August 26, 1980 the IBWC submitted to, and the two Governments subsequently approved Minute No. 264, "Recommendations for Solution of the New River Border Sanitation Problem at Calexico, California-Mexicali, Baja California." Under this agreement Mexico is taking steps to provide an interim solution to the problem of the discharge of sanitary and industrial waste waters from the Mexican City into New River which flows north across the boundary. The recommended goal for a permanent solution is the elimination of sanitary and industrial wastes in the waters of New River crossing the boundary.

Tijuana International Emergency Connection Works and Border Sanitation Problem

In accordance with the responsibility of the IBWC under the 1944 Water Treaty to give preferential attention to the solution of all border sanitation problems, the IBWC in 1965 recommended and the Governments of the United States and Mexico approved construction of an emergency connecting pipeline between the main collector line for sanitary waste waters form the City of Tijuana, Baja California and a branch collector line of the San Diego Metropolitan Sewage System. This connection was recommended so that at times of emergency, such as a breakdown in the Tijuana pumping plants required of disposal of its waste waters, these could be diverted to and safely disposed of by the San Diego system and thereby avoid a serious unsanitary condition as might be caused by an overflow of waste water onto lands in the City of San Diego and in the streets in the City of Tijuana. The connection, constructed under authorization in the Act of August 19, 1935, was completed in 1966.

A contract was signed by the United States Section in 1965 with the City of San Diego. In this contract, the City agreed to permit discharges into its system from the City of Tijuana, so long as excess capacity was available in the San Diego system, and the Mexican Government agreed to repay to the City of San Diego, through the IBWC, for the costs of disposal in the San Diego system.
The connection consists of a valved turnout pipe in Mexico, extending northward 300 feet (91.4 m) to the international boundary, thence a pipeline continuing northward in the United States a distance of 4,277 feet (1,304 m) partially under the Tijuana River floodplain to the San Ysidro branch collector line in the United States. The installation includes a metering station with a continuous recorder. Each Government paid the costs of the works it its territory.

In the years of 1966 and 1975 Mexico made only periodic use of the emergency connection. Since 1975 Mexico has made extensive use of the connection pending its correction of inadequacies which developed in the Tijuana disposal system. The connection has served well to avert serious hazards to the health and well-being of inhabitants in both countries in the San Diego-Tijuana area.

Because of the growth of the City of Tijuana, its sewage disposal system is no longer adequate. For this reason, there is a serious threat to the health and well-being of inhabitants in both countries and to their beneficial use of the waters of the Tijuana River and of the ocean beaches near the boundary in the San Diego-Tijuana area. To alleviate this problem, Mexico is taking steps to improve the Tijuana disposal system. Under Minute No. 261, the IBWC has under consideration recommendations to the two

Governments for interim and long-term solution to this problem.

United States Emergency Deliveries of Colorado River Waters to the City of Tijuana

At the request of Mexico, the United States Section arranged through the cooperation of California water authorities for the United States to make emergency deliveries of a part of Mexico's 1944 Water Treaty allotment of water of the Colorado River to the City of Tijuana, Baja California to alleviate a shortage in the municipal supply of water for that City, in each of the years 1973 through 1978. Since 1978, runoff into Mexico's reservoir has been sufficient to meet the water supply needs of the City. At Mexico's request the United States facilities for such emergency deliveries are maintained on a standby basis.

The deliveries required diversions from the Colorado River at Parker Dam on the Colorado River and conveyance by 322 miles (518 km) of aqueducts, including the Colorado River Aqueduct and the San Diego Aqueduct, to the reservoir facilities of the City of San Diego, and conveyance facilities of the Otay Water District to a point on the boundary 6.3 miles (10 km) east of the San Ysidro-Tijuana Port of Entry, where the waters are discharged into Mexico's pipeline for the City of Tijuana. The cooperating California authorities were the Metropolitan Water District of Southern California, the San Diego County Water Authority, City of San Diego and Otay Water District. The United States Bureau of Reclamation collaborated by arranging for the diversions at Parker Dam.

Mexico pay to the California authorities through the IBWC, the cost for use of the several facilities for the emergency deliveries at the same rate as those to United States users in comparable locations.

The deliveries were made under agreements reached by the IBWC and approved by the Department of State under the Constitutional power of the President in Foreign Relations. The agreements provide for emergency deliveries during an interim period at no cost to the United States until Mexico was able to supply its needs in the Tijuana area. Mexico began early in 1975 to construct an aqueduct in its territory to convey a portion of its Treaty allotment of Colorado River waters to Tijuana. This aqueduct, 76 miles (122 km) long, is scheduled to be completed in 1982.

International Tijuana River Flood Control Project

Under the terms of the 1944 Water Treaty relating to the Tijuana River, the IBWC in 1967 recommended to the two Governments and they approve a joint project for the control of floods on the Tijuana River in the United States and Mexico for protection of developments near the boundary in the City of San Diego, California and in the City of Tijuana, Baja California. A joint project was essential because coordinated flood control works were required in each country to protect developments in the other country. The United States Section was authorized to construct its portion of the international flood control project by the Act of Congress of September 28, 1976. The project was completed in early 1979.

The Tijuana River drains a 1,730 square mile (4,480 km) basin situated partly in the United States and partly in Mexico. Originating in Mexico, the river flows northwestward through the City of Tijuana, crosses the international boundary into the United States near San Ysidro, California, then flows westerly in a broad floodplain about 5.3 mile (9 km) to discharge into the Pacific Ocean at a point about 1.5 miles (2 km) north of the boundary. The project consists of a concrete-lined channel for the Tijuana River in Mexico extending from the boundary upstream 2.7 miles (4 km), and of a concrete and rock-lined channel in the United States extending from the boundary downstream 0.9 mile (2 km). The downstream portion of the channel in the United States is a flared section to reduce the velocity of flows before discharging into the natural channel below the project. The channel and bordering levees were constructed pursuant to jointly approved design criteria and plans to contain a flood of 135,000 cfs (3,823 cms). The levees in the United States tie into high ground on the north to protect the community of San Ysidro and on the south to protect the City of Tijuana. Each Government constructed and maintains at its cost the part of the project in its territory under the supervision of the IBWC.

For the United States part of the project the State of California and the City of San Diego acquired and furnished the rights-of-way for the channel and the levees. The United States Section contracted with the United States Army Cops of Engineers, Los Angeles district, to prepare the plans and supervise the construction of the United States part.

In 1980 the project safely carried through its structures the highest flood flows in the Tijuana River since at least 1916, averting within the limits of the project property damage and probably life in the United States and Mexico.

Monumentation of the Land Boundary

The land boundary as established by the 1848 Treaty and the 1853 Treaty, extending over a total distance of 674 miles (1,084 km) is marked on the ground by 276 permanent monuments, maintained jointly by the IBWC under the 1944 Water Treaty which extended the IBWC's jurisdiction to the land boundary between the two countries.

The land boundary was initially marked by 52 monuments by the surveys of a temporary joint commission provided for in the Treaties of 1848 and 1853. The number of monuments was increased to 258 between 1891 and 1896 by a joint boundary survey Commission created by the Convention of 1882. Since then a number of additional monuments have been placed by the Joint Commission.

The permanent monuments are generally six to 11 feet in height (1.83 to 3.35 m), and obelisk in form. Thirty-six of the monuments are of masonry and 238 are of cast or sectional iron. Monument No. 255 near the Tijuana River in California is made of granite, and the historic Monument No. 258 overlooking the Pacific Ocean is made of marble. The maintenance costs are equally shared by the two Sections of the IBWC and they make joint inspections and maintain the monuments at least every five years.

Beginning in 1975 the IBWC placed intermediate markers between boundary monuments to clearly demark the land boundary through urban areas. The markers consist of reinforced concrete posts and marked with a steel plate on top identifying their location in meters west of the nearest monument. Cost of installation of the markers and their maintenance is also shared equally by the two Sections.